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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,727

08/08/2006

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EXAMINER

SASTRI, SATYA B

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/08/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,727	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> SATYA B. SASTRI	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☒ Other: 1. JP 2004010735A, machine translation 2. Lee et al.  
("The Glass Transition Temperatures of Polymers", Polymer  
Handbook, 2nd ed., Brandrup et al. ed., John Wiley & Sons, New  
York, pp 139-142 (1975) 3. Wypych, George (Handbook of Fillers,  
Chem Tech Publishing, 4/21/2001, pages 23, 24, 106).

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### **DETAILED ACTION**

1. This office action is in response to application filed on 6/11/09. Claims 1, 2, 4-7, 9 are now pending in the application.

2. In view of the amendment, all rejections set forth in the office action dated 1/12/09 are withdrawn. However, in view of newly found art, new grounds of rejection are set forth herein.

### ***Previously Cited Statutes***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pettit Jr. (US 5,202,382) in view of Nishioka et al. (JP 2004010735A, machine translation) and Lee et al. ("The Glass Transition Temperatures of Polymers", Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John Wiley & Sons, New York, pp 139-142 (1975).

The Pettit, Jr. reference discloses powder coating compositions comprising a co-reactable particle mixture of an acid group-containing acrylic polymer having a Tg in the range of -20°C to 30°C, an acid group-containing acrylic polymer having a Tg in the range of 40°C to 100°C and a curing agent. Both, high and low Tg polymers have a mol. wt. ranging 1,500 to 15,000. The acid

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content of the polymer typically ranges from 6 to 25% by wt. of the total monomers (abstract, col. 2-3).

Disclosed curing agents capable of reacting with acid groups to form a crosslinked product include a variety of polyepoxides having an epoxy equivalent weight of 100 to 1,000 and preferably, 150 to 800 (col. 5, lines 28-66).

The prior art fails to disclose compositions comprising at least one of metal carbonate or metal hydroxide having particle size in the range of 0.5 to 30  $\mu\text{m}$  as presently claimed.

Pending an official translation, it is noted a machine translation is relied upon for JP2004010735A in the rejection set forth herein. It is also noted that that the primary reference to Pettit Jr. discloses that the coating compositions may contain certain other additives that are typically incorporated into powder coating compositions (col. 6, lines 49-51).

Secondary reference to Nishioka et al. discloses filler for powder coating compositions. The disclosed filler comprises calcium carbonate having a preferred particle size of 0.5 to 15 micrometer and a BET specific surface area of 2-15  $\text{m}^2/\text{g}$  (ab., 0026). Furthermore, such filler particles are suitable for use with thermosetting acrylic resins (claims 2 and 8). Given the teaching that when calcium carbonate particles having a size of 0.5 to 15 micrometer and a BET specific surface area of 2-15  $\text{m}^2/\text{g}$  are included, the resultant coating films have good external appearance, i.e. smooth surface and good gloss (ab., 0026), it would have been obvious to one of ordinary skill in the art to include the same in coating compositions of Pettit Jr. and thereby arrive at the present invention. Additionally, it is noted that both references pertain to powder coating compositions and are thus, combinable.

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Examiner notes that an acid content of 6 to 25% by wt. of the total monomers disclosed in the Pettit Jr. reference as well as the acrylic copolymer in working example B meet the acid value limitation as presently recited in claim 1.

With regard to the glass transition temperature range recited in claim 1, examiner notes that a glass transition temperature ( $T_g$ ) is known to be dependent on the method and conditions of measurement. For instance as discussed by Lee et al. (p. III-141, section (3)), concerning dynamic measurements and rate effects,  $T_g$  values differing by  $20^{\circ}\text{C}$  or more are obtained depending on the method and conditions of measurement. Even when the method is specified, the conditions of measurement are also important as for instance is set forth in the ASTM method for determining  $T_g$  by differential scanning calorimetry or differential thermal analysis (ASTM E 1356). Heating rates are known to alter results (see § 6.1), and whether the onset temperature or the midpoint temperature of the range over which heat capacity changes is also important (see Fig. 1, and § 10.7). As set forth in the test method “Any comparison of glass transition temperatures should contain a statement of how the test was run and how the value was obtained. Thus, given that the prior art to Pettit Jr. discloses an acid group-containing acrylic polymer having a  $T_g$  in the range of  $-20^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ , and given that the instant claim 1 recites range of  $-60^{\circ}\text{C}$  to  $-20^{\circ}\text{C}$ , and given the teaching by Lee et al. that the  $T_g$  can differ by  $20^{\circ}\text{C}$  or more based on the measurement techniques, it is the examiner’s position that the presently claimed range for  $T_g$  overlaps with that disclosed in the prior art or is close so that disclosed in the prior art that one skilled in the art would have expected the properties to be similar to that of the prior art acrylic copolymer.

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In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). See MPEP § 2144.05. Regarding ranges that are close, case law holds that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

With regard to claim 4, it is the examiner's position that the limitation "heat-stable soft resinous sheet article" reads on a coated substrates disclosed in Pettit Jr. reference (col. 7, lines 22-24) wherein the properties, i.e. heat stability and softness, are deemed intrinsic to the modified Pettit Jr. compositions and as such, the composition as presently claimed are met by the prior art.

5. Claims 1, 4, 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pettit Jr. (US 5,202,382) in view of Lee et al. ("The Glass Transition Temperatures of Polymers", Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John Wiley & Sons, New York, pp 139-142 (1975) and further in view of Wypych, George (Handbook of Fillers, Chem Tech Publishing, 4/21/2001, pages 23, 24, 106).

The discussions with regard to Pettit Jr. and Lee et al. above in paragraph 4 are incorporated herein by reference.

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The prior art to Pettit Jr. fails to disclose compositions comprising a metal hydroxide as filler in an amount of 150 parts by wt. or more to 100 parts of acrylic copolymer as presently claimed.

The Wypych handbook discloses fillers and their particle sizes for use in a variety of applications. For instance, the reference teaches that aluminum trihydroxide having particle size in the range of 0.7 to 55  $\mu\text{m}$  may be used in large quantities (e.g. 150 phr) to obtain flame retarding properties (pages 22-23). Like wise, the reference discloses that magnesium hydroxide having particle size in the range of 0.5 to 7.7  $\mu\text{m}$  competes with aluminum hydroxide for fire retardant applications (page 106). Thus, given that the primary reference to Pettit Jr. is open to the use of known additives in the coating compositions and given that the handbook teaches magnesium hydroxide and aluminum trihydroxide microparticles as suitable art recognized additives for flame retardant coating compositions, it would have been obvious to one of ordinary skill in the art to include such metal hydroxides in the coating compositions of Pettit Jr. and thereby arrive at the present invention.

6. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) Pettit Jr. (US 5,202,382) in view of Nishioka et al. (JP 2004010735A, machine translation), Lee et al. ("The Glass Transition Temperatures of Polymers", Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John Wiley & Sons, New York, pp 139-142 (1975) and further in view of Wakabayashi et al. (WO2004/031299) or (2) Pettit Jr. (US 5,202,382) in view of Lee et al. ("The Glass Transition Temperatures of Polymers", Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John

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Wiley & Sons, New York, pp 139-142 (1975), Wypych, George (Handbook of Fillers, Chem Tech Publishing, 4/21/2001, pages 23, 24, 106) and Wakabayashi et al. (WO2004/031299).

The discussions with regard to Pettit Jr., Nishioka et al., Lee et al. and Wypych above in paragraphs 4 and 5 are incorporated herein by reference.

The prior art is silent with regard to hydroxyl group-containing aliphatic acids in the curable compositions as presently claimed.

Prior art to Wakabayashi et al. discloses curable compositions that comprise (meth)acrylate polymers (col. 3, lines 55-60). The compositions may further include carboxylic acids or hydroxyl group-containing aliphatic acids such as glycolic acid, gluconic acid, caprylic acid, 2-hydroxydecanoic acid etc. (col. 16, lines 16-56, col. 19, lines 26-35). Given the teaching that such carboxylic acids and hydroxyl group-containing carboxylic acids are useful for the recovery property, durability and creep resistance and water resistant adhesion of the coatings (col. 19, lines 56-65), it would have been obvious to one of ordinary skill in the art to include any of the disclosed acids, including the presently claimed hydroxyl group-containing aliphatic acids in the coating compositions of modified Pettit Jr. and thereby arrive at the present claims, absent evidence of unexpected results.

With regard to claim 9, as noted above in paragraph 4, the limitation "heat-stable soft resinous sheet article" reads on a coated substrates disclosed in Pettit Jr. reference (col. 7, lines 22-24) wherein the properties, i.e. heat stability and softness, are deemed intrinsic to the modified Pettit Jr. compositions and as such, the composition as presently claimed are met by the the Pettit Jr. reference.

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7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) Pettit Jr. (US 5,202,382) in view of Nishioka et al. (JP 2004010735A, machine translation), Lee et al. (“The Glass Transition Temperatures of Polymers”, Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John Wiley & Sons, New York, pp 139-142 (1975) and further in view of Dany et al. (US 4,009,137) or (2) Pettit Jr. (US 5,202,382) in view of Lee et al. (“The Glass Transition Temperatures of Polymers”, Polymer Handbook, 2<sup>nd</sup> ed., Brandrup et al. ed., John Wiley & Sons, New York, pp 139-142 (1975), Wypych, George (Handbook of Fillers, Chem Tech Publishing, 4/21/2001, pages 23, 24, 106) and Dany et al. (US 4,009,137).

The discussions with regard to Pettit Jr., Nishioka et al., Lee et al. and Wypych above in paragraphs 4 and 5 are incorporated herein by reference.

The prior art is silent with regard to the specific use of polyphosphate-based flame retardants in the curable compositions.

Dany et al. disclose that phosphorus based flame retardants such as ammonium polyphosphates may be used to make flame retardant coating compositions (abstract). Given the teaching on polyphosphates as flame retardants, it would have been obvious one of ordinary skill in the art to include any of the art recognized flame retardants, including a combination of metal hydroxide and polyphosphates, in the coating compositions of modified Pettit Jr. and thereby arrive at the present claim. It is well settled that it is *prima facie* obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Also, case law holds that “it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same

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purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art.” *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Mondays, Thursdays and Fridays, 7AM-5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Wu can be reached on 571-272-1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Examiner, Art Unit 1796